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Serial No. 10/668,523  
60246-218

**Amendments to Claims:**

This listing of claims will replace all prior revisions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A fluid purification system for purifying a fluid comprising:  
a substrate;  
a photocatalytic coating applied on said substrate; and  
a light source to activate said photocatalytic coating, said light source including a non-reflective portion including a lens having a non-uniform thickness that allows passage of light and a reflective portion that reflects said light to pass through said non-reflective portion of said light source.
2. (Currently Amended) The fluid purification system as recited in claim 1 wherein said light source is operative to activate ~~activates~~ said photocatalytic coating, ~~and said photocatalytic coating oxidizes to oxidize~~ contaminants within the fluid that are adsorbed onto said photocatalytic coating when activated by said light source.
3. (Original) The fluid purification system as recited in claim 1 wherein said light source is an ultraviolet light source.
4. (Original) The fluid purification system as recited in claim 3 wherein said light source is a mercury vapor lamp.
5. (Original) The fluid purification system as recited in claim 3 wherein said light source is an excimer lamp.
6. (Original) The fluid purification system as recited in claim 3 wherein said light

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source is an electrodeless lamp.

7. (Original) The fluid purification system as recited in claim 3 wherein said light source is an inductively coupled lamp.

8. (Original) The fluid purification system as recited in claim 3 wherein said light source is a radio frequency powered lamp.

9. (Original) The fluid purification system as recited in claim 3 wherein said light source is a light emitting diode.

10. (Original) The fluid purification system as recited in claim 3 wherein said light source generates said light having a wavelength between 180 nm and 400 nm.

11. (Original) The fluid purification system as recited in claim 10 wherein said light source has a peak wavelength of 254 nm.

12. (Original) The fluid purification system as recited in claim 1 wherein said photocatalytic coating is titanium oxide.

13. (Currently Amended) The fluid purification system as recited in claim 1 wherein photons from said light source are absorbed by said photocatalytic coating to form a reactive hydroxyl radical that oxidizes contaminants within the fluid in the presence of oxygen and water to water and carbon dioxide.

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14. (Currently Amended) The fluid purification system as recited in claim 1 wherein said contaminants within the fluid are a volatile organic compound including at least one of formaldehyde, toluene, propanal, butene, acetaldehyde, aldehyde, ketone, alcohol, aromatic, alkene, and alkane.
15. (Currently Amended) The fluid purification system as recited in claim 1 wherein said contaminants within the fluid are a semi-volatile organic compound including at least one of naphthalene, PCB polychlorinated biphenyl, PAH polycyclic aromatic hydrocarbon and an insecticide.
16. (Currently Amended) The fluid purification system as recited in claim 1 wherein said reflective portion ~~cover~~ covers a portion of said light source.
17. (Original) The fluid purification system as recited in claim 16 wherein said reflective portion covers more than half of said portion of said light source.
18. (Original) The fluid purification system as recited in claim 1 wherein said non-reflective portion of said lamp is proximate to said substrate and said reflective portion of said light source is distal to said substrate.
19. (Original) The fluid purification system as recited in claim 1 wherein said substrate is an array of voids separated by a solid.
20. (Original) The fluid purification system as recited in claim 1 further including a housing, the fluid purification system is in said housing, and walls of said housing are lined with a reflective material.

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21. (Original) The fluid purification system as recited in claim 1 wherein said light source is cylindrical.
22. (Original) The fluid purification system as recited in claim 1 wherein said reflective portion is a reflective coating.
23. (Original) The fluid purification system as recited in claim 1 wherein said non-reflective portion of said light source is shaped to direct said light to said substrate.
- 24.-26. (Cancelled)
27. (Currently Amended) The fluid purification system as recited in claim 1 wherein said ~~non-reflective portion~~lens of said light source is a converging lens.
28. (Original) The fluid purification system as recited in claim 1 wherein the fluid is air.
29. (Original) The fluid purification system as recited in claim 1 wherein said substrate is porous and allows a fluid to flow through said substrate.
30. (Original) The fluid purification system as recited in claim 1 wherein said light source directs said light towards said substrate and directs said light away from an undesired location.

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31. (Original) A fluid purification system for purifying a fluid comprising:  
a substrate;  
a photocatalytic coating applied on said substrate; and  
a light source to activate said photocatalytic coating, said light source including a non-reflective portion that allows passage of light and a reflective portion that reflects said light to pass through said non-reflective portion and towards said substrate, and said reflective portion reflects said light away from an undesired location.

32.-55. (Cancelled)

56. (New) The fluid purification system as recited in claim 1, wherein the lens is a section of a body having a circular cross-section, wherein the non-uniform thickness of the section transitions into a uniform thickness section of the circular cross-section.

57. (New) The fluid purification system as recited in claim 1, wherein the lens comprises a section of a cylindrical body circumscribing the light source.

58. (New) The fluid purification system as recited in claim 1, wherein the lens surrounds an area from which the light source emits light.